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SOU P0908

FIG. 1

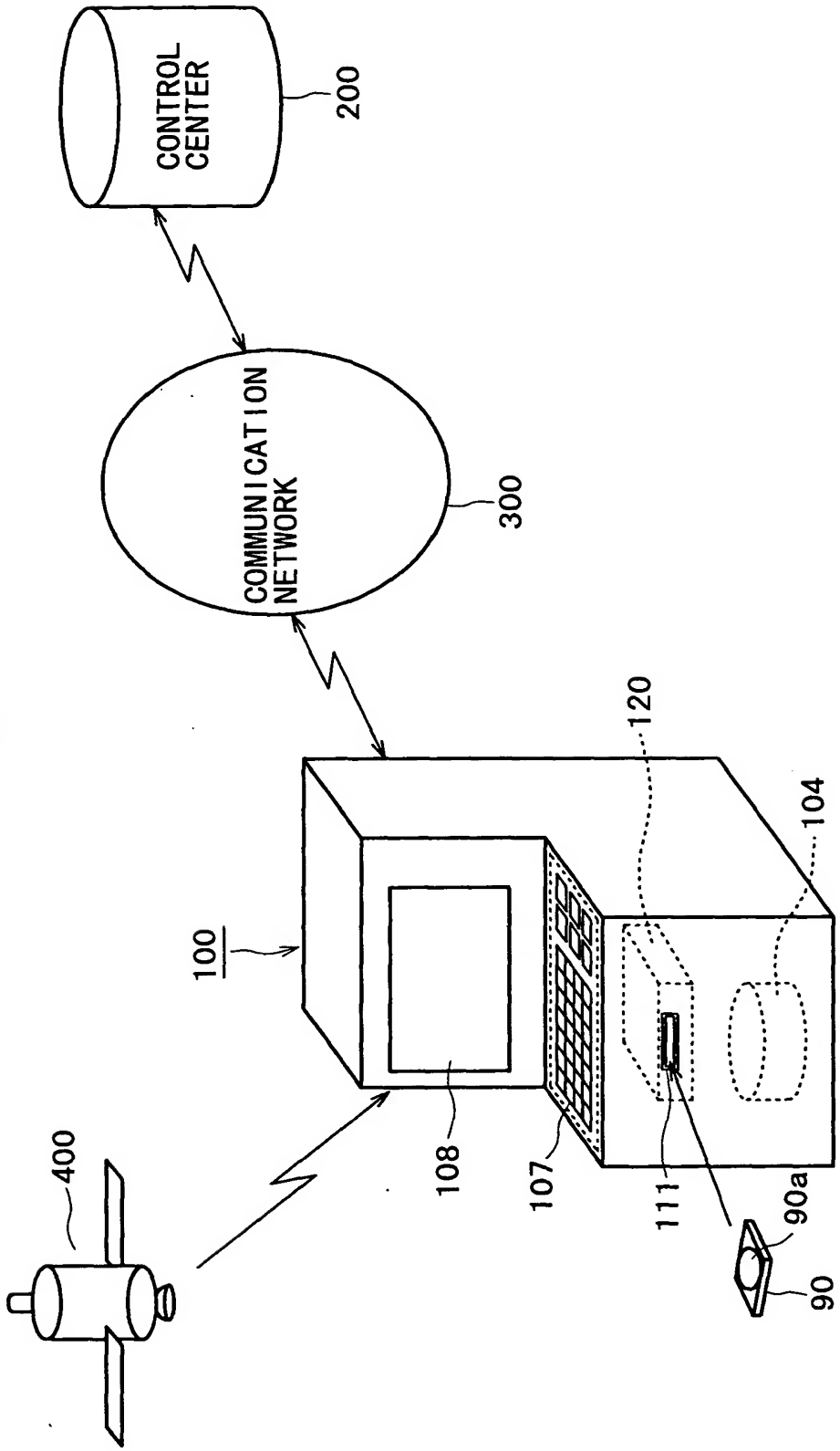


FIG. 2

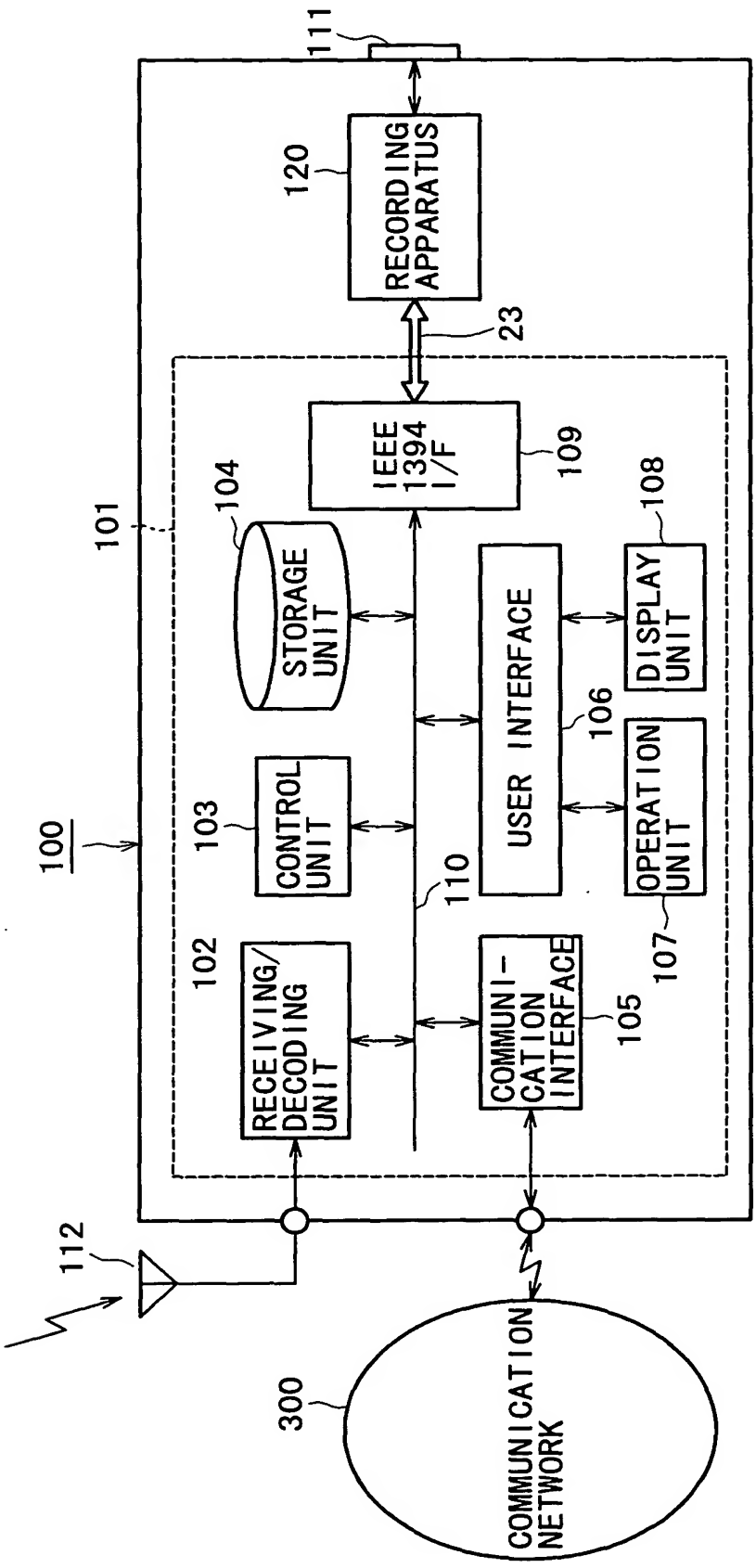

111
120
RECORDING APPARATUS
23
IEEE 1394 I/F
109
101
104
STORAGE UNIT
108
DISPLAY UNIT
USER INTERFACE
106
100
103
CONTROL UNIT
OPERATION UNIT
110
102
RECEIVING/ DECODING UNIT
COMMUNI-CATION INTERFACE
105
107
112
300
COMMUNICATION NETWORK

FIG. 3

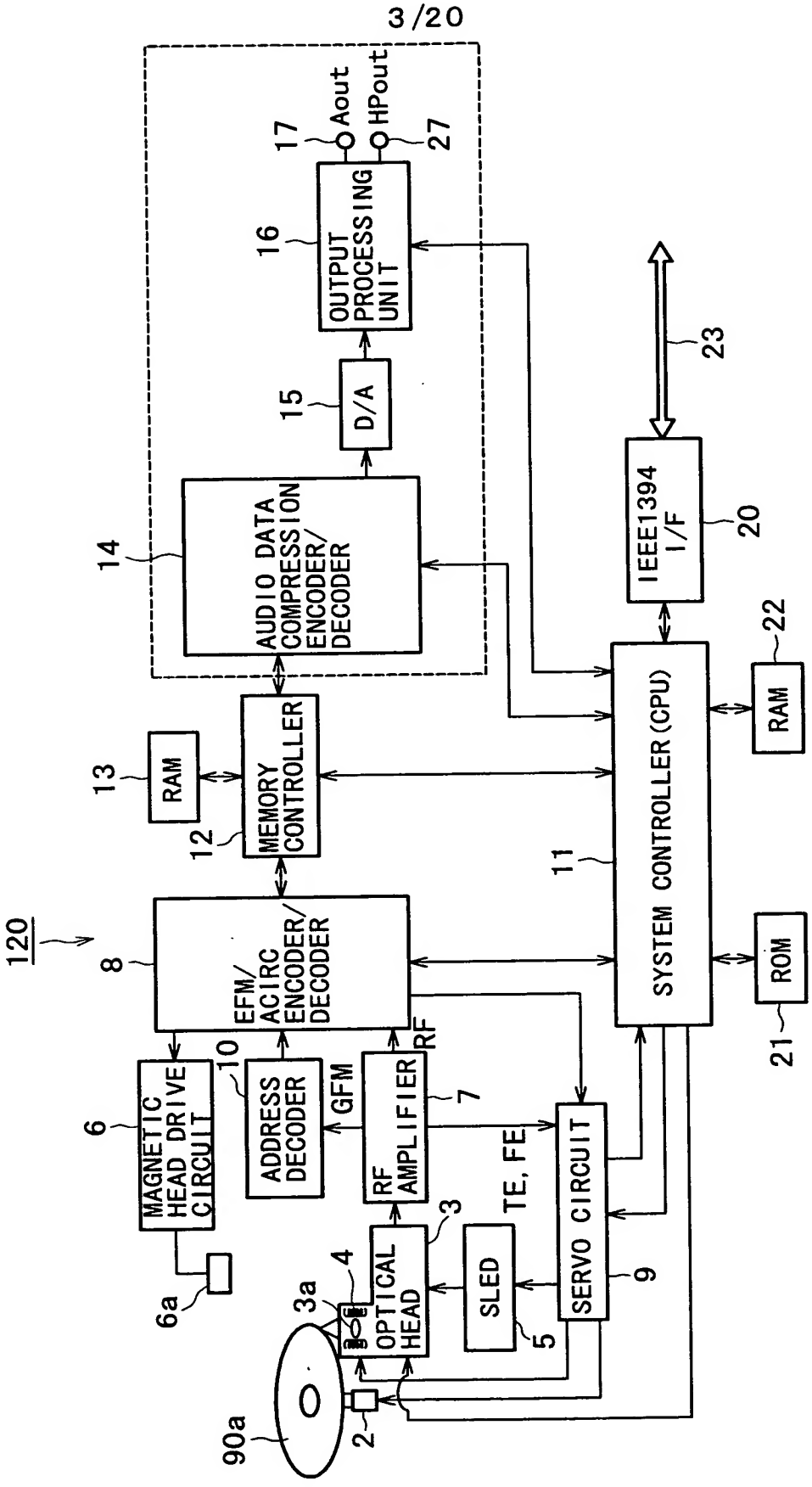

120
90a
2
3a
4
OPTICAL HEAD
3
SLED
5
TE, FE
SERVO CIRCUIT
9
6
MAGNETIC HEAD DRIVE CIRCUIT
6a
10
ADDRESS DECODER
GFM
RF AMPLIFIER
7
RF
8
EFM/ ACIRC ENCODER/ DECODER
12
MEMORY CONTROLLER
13
RAM
14
AUDIO DATA COMPRESSION ENCODER/ DECODER
15
D/A
16
OUTPUT PROCESSING UNIT
17
Aout
27
HPout
11
SYSTEM CONTROLLER (CPU)
RAM
22
IEEE1394 I/F
20
23
ROM
21

FIG. 4A

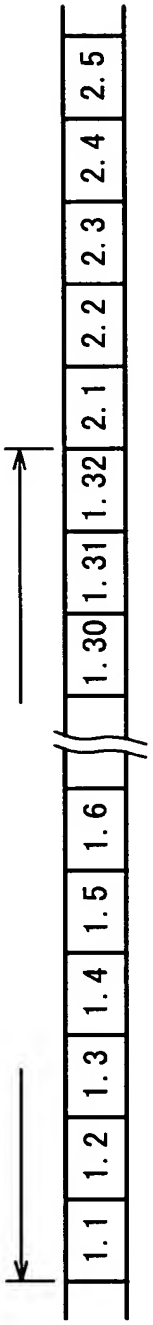

1.1
1.2
1.3
1.4
1.5
1.6
1.30
1.31
1.32
2.1
2.2
2.3
2.4
2.5

FIG. 4B

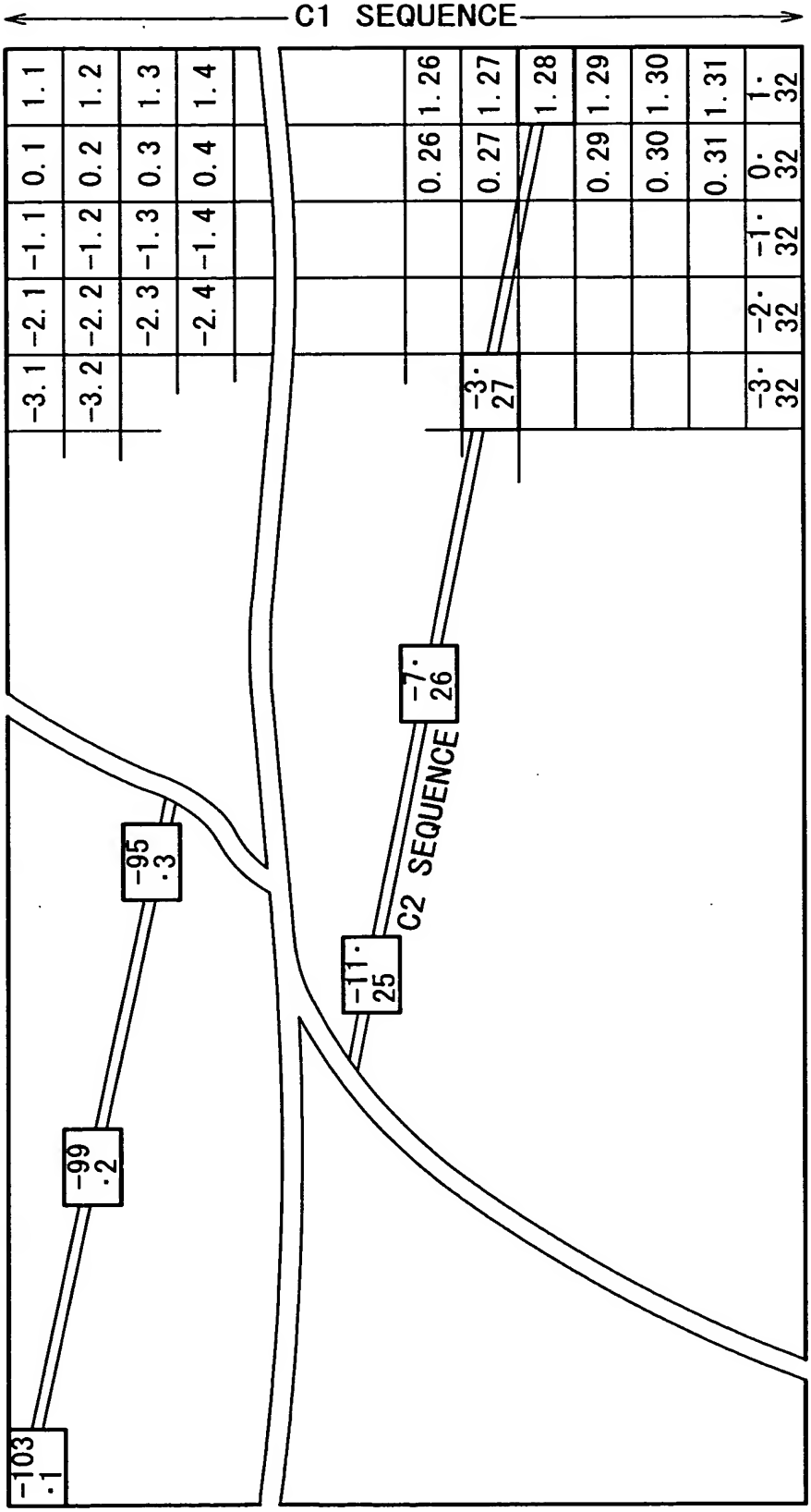

C1 SEQUENCE
C2 SEQUENCE
-103 .1
-99 .2
-95 .3
-11 25
-7 26
-3 27
1.1
1.2
1.3
1.4
0.1
0.2
0.3
0.4
-1.1
-1.2
-1.3
-1.4
-2.1
-2.2
-2.3
-2.4
-3.1
-3.2
1.26
1.27
1.28
1.29
1.30
1.31
1 32
0 32
-1 32
-2 32
-3 32

FIG. 5

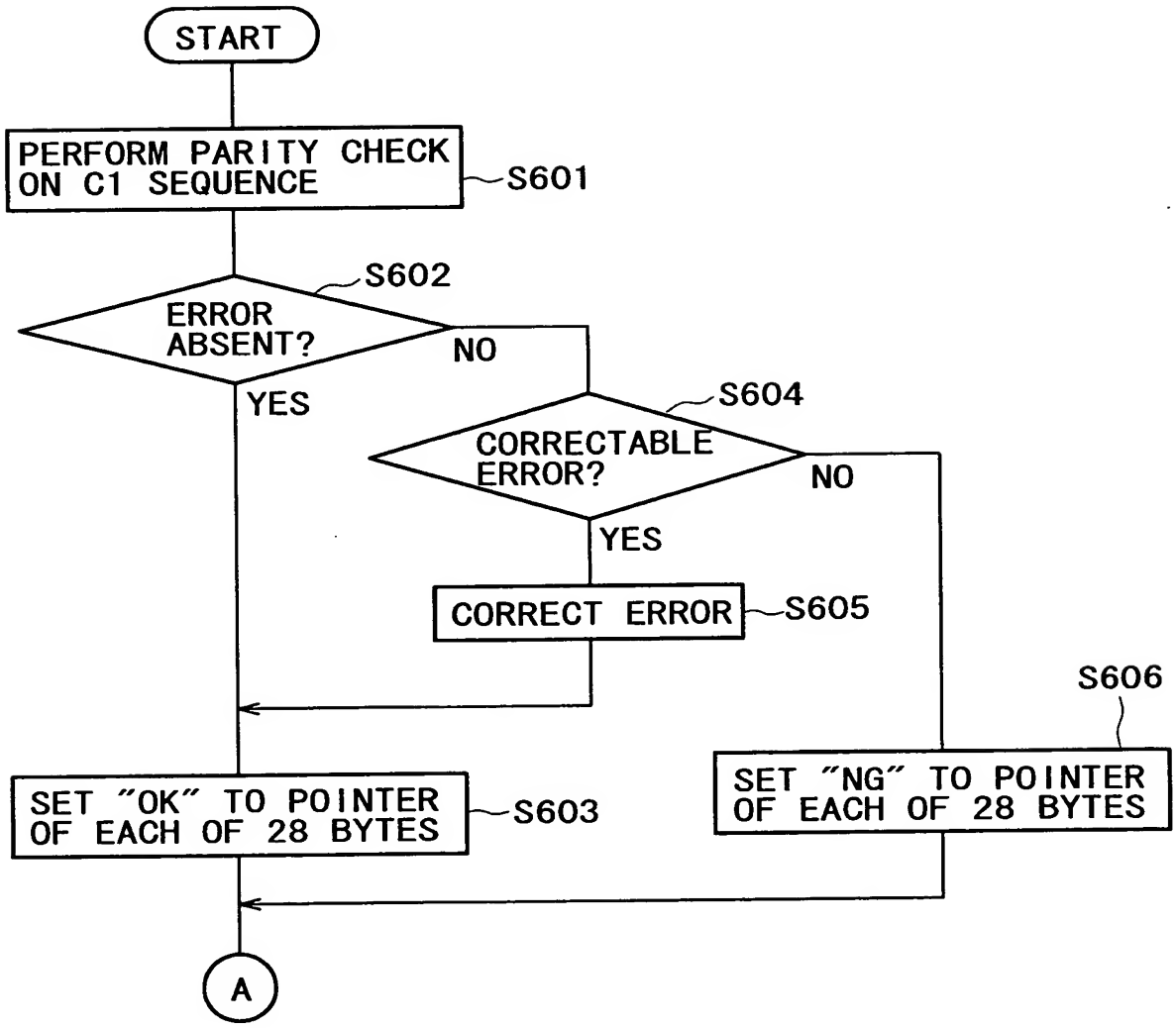

START
PERFORM PARITY CHECK ON C1 SEQUENCE
S601
S602
ERROR ABSENT?
NO
YES
S604
CORRECTABLE ERROR?
NO
YES
CORRECT ERROR
S605
S606
SET "OK" TO POINTER OF EACH OF 28 BYTES
S603
SET "NG" TO POINTER OF EACH OF 28 BYTES
A

FIG. 6

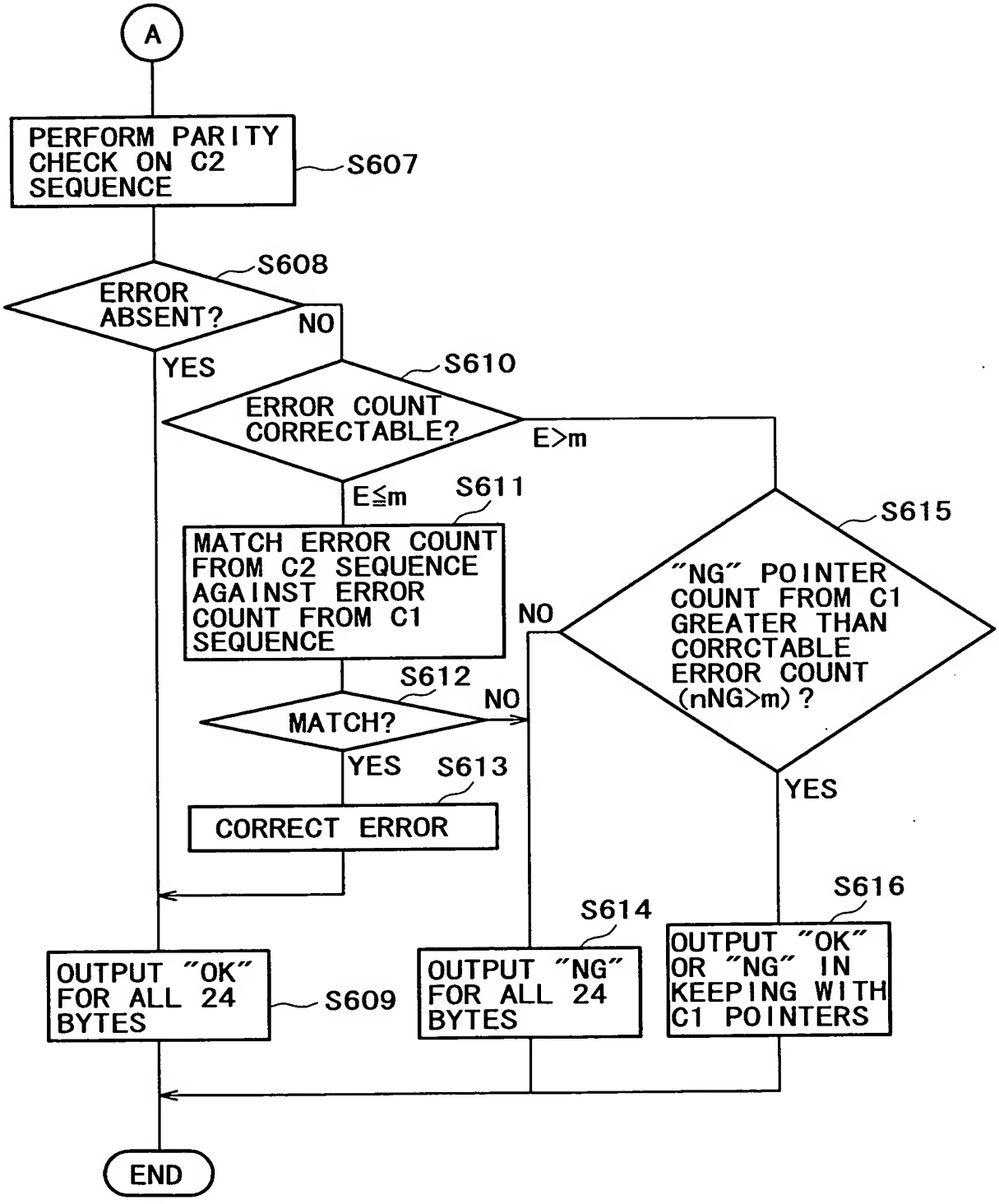

A
PERFORM PARITY CHECK ON C2 SEQUENCE
S607
S608
ERROR ABSENT?
NO
YES
S610
ERROR COUNT CORRECTABLE?
E>m
E≦m
S611
MATCH ERROR COUNT FROM C2 SEQUENCE AGAINST ERROR COUNT FROM C1 SEQUENCE
S612
MATCH?
NO
YES
S613
CORRECT ERROR
S615
"NG" POINTER COUNT FROM C1 GREATER THAN CORRCTABLE ERROR COUNT (nNG>m)?
NO
YES
S616
OUTPUT "OK" OR "NG" IN KEEPING WITH C1 POINTERS
S614
OUTPUT "NG" FOR ALL 24 BYTES
OUTPUT "OK" FOR ALL 24 BYTES
S609
END

FIG. 7

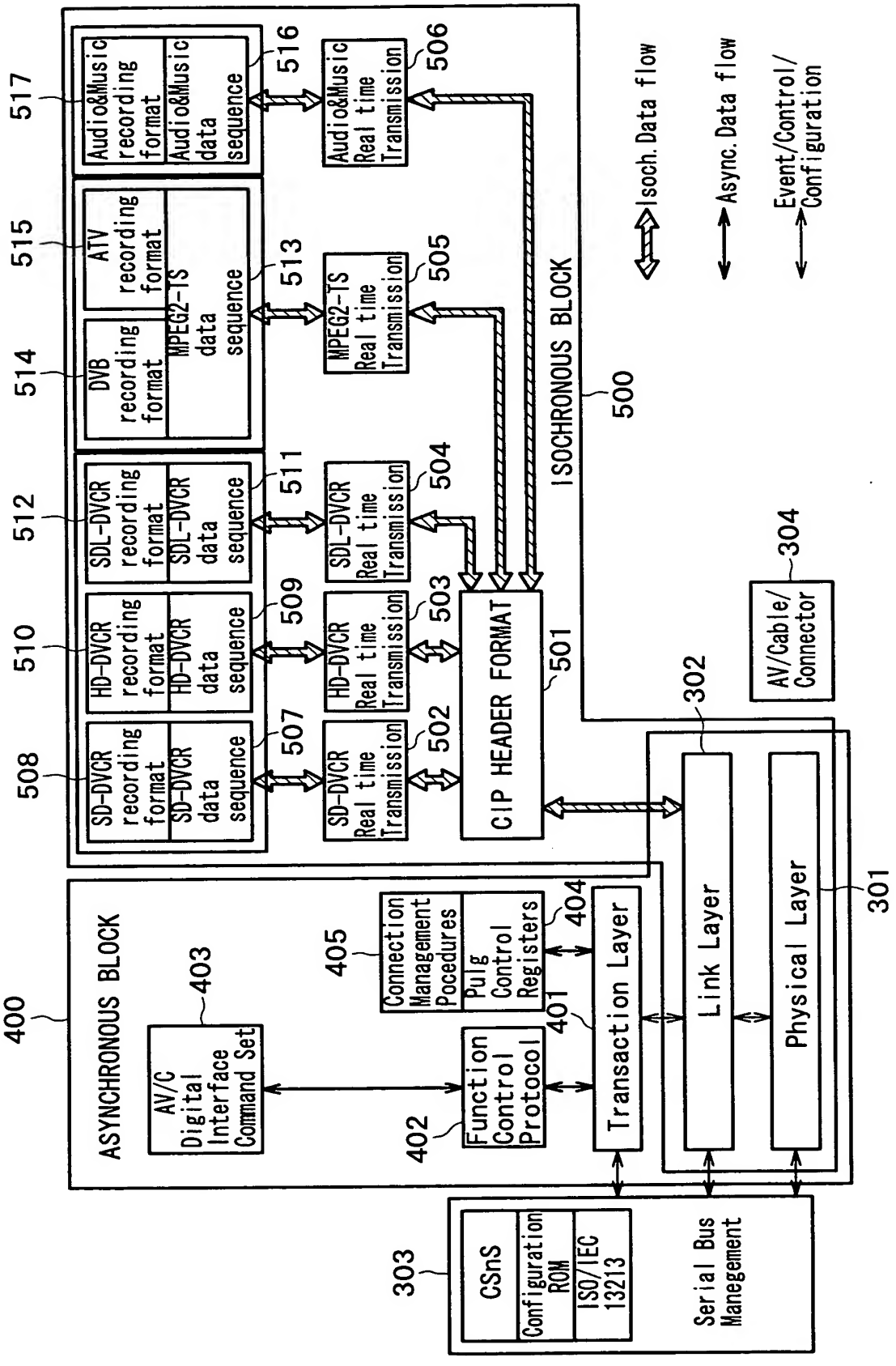

ASYNCHRONOUS BLOCK
400
AV/C Digital Interface Command Set
403
Function Control Protocol
402
Connection Management Pocedures
Plug Control Registers
405
404
Transaction Layer
401
Link Layer
Physical Layer
301
302
CSnS
Configuration ROM
ISO/IEC 13213
303
Serial Bus Manegement
CIP HEADER FORMAT
501
ISOCHRONOUS BLOCK
500
SD-DVCR recording format
SD-DVCR data sequence
507
SD-DVCR Real time Transmission
502
HD-DVCR recording format
HD-DVCR data sequence
509
HD-DVCR Real time Transmission
503
SDL-DVCR recording format
SDL-DVCR data sequence
511
SDL-DVCR Real time Transmission
504
DVB recording format
ATV recording format
MPEG2-TS data sequence
513
MPEG2-TS Real time Transmission
505
Audio&Music recording format
Audio&Music data sequence
516
Audio&Music Real time Transmission
506
AV/Cable/ Connector
304
Isoch. Data flow
Async. Data flow
Event/Control/ Configuration
508
510
512
514
515
517

FIG. 8

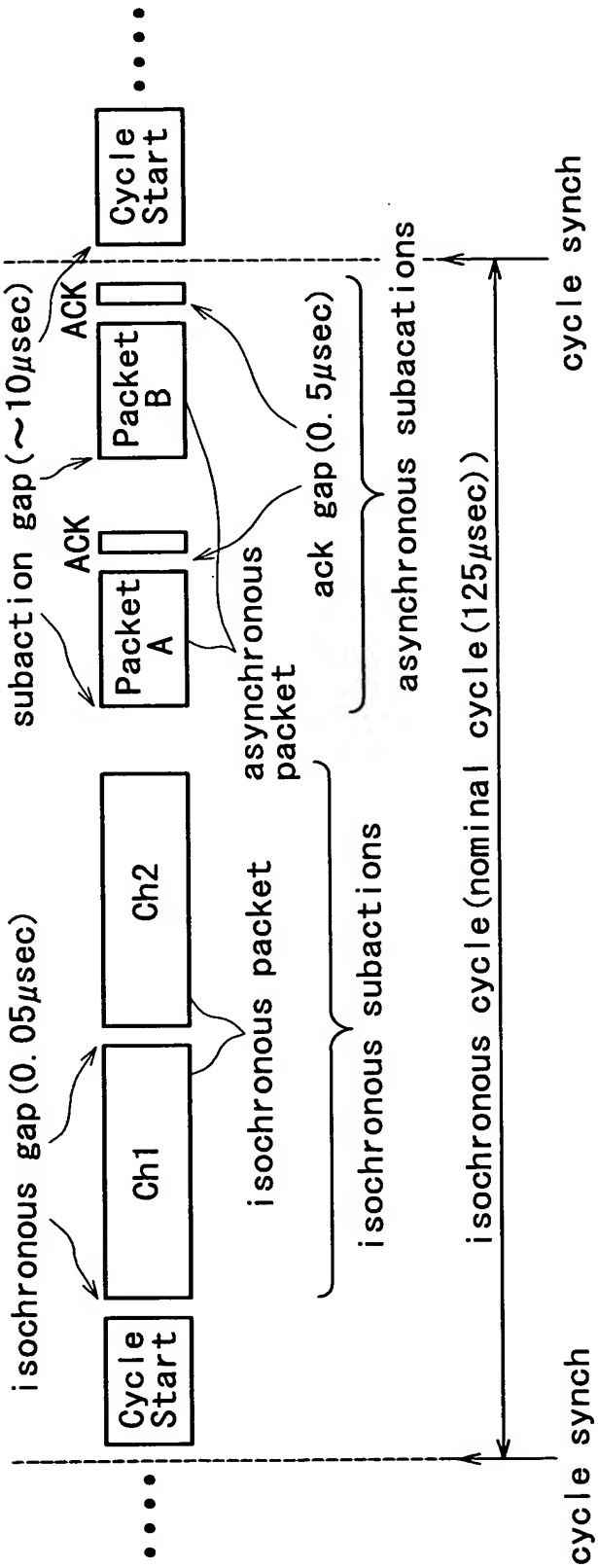
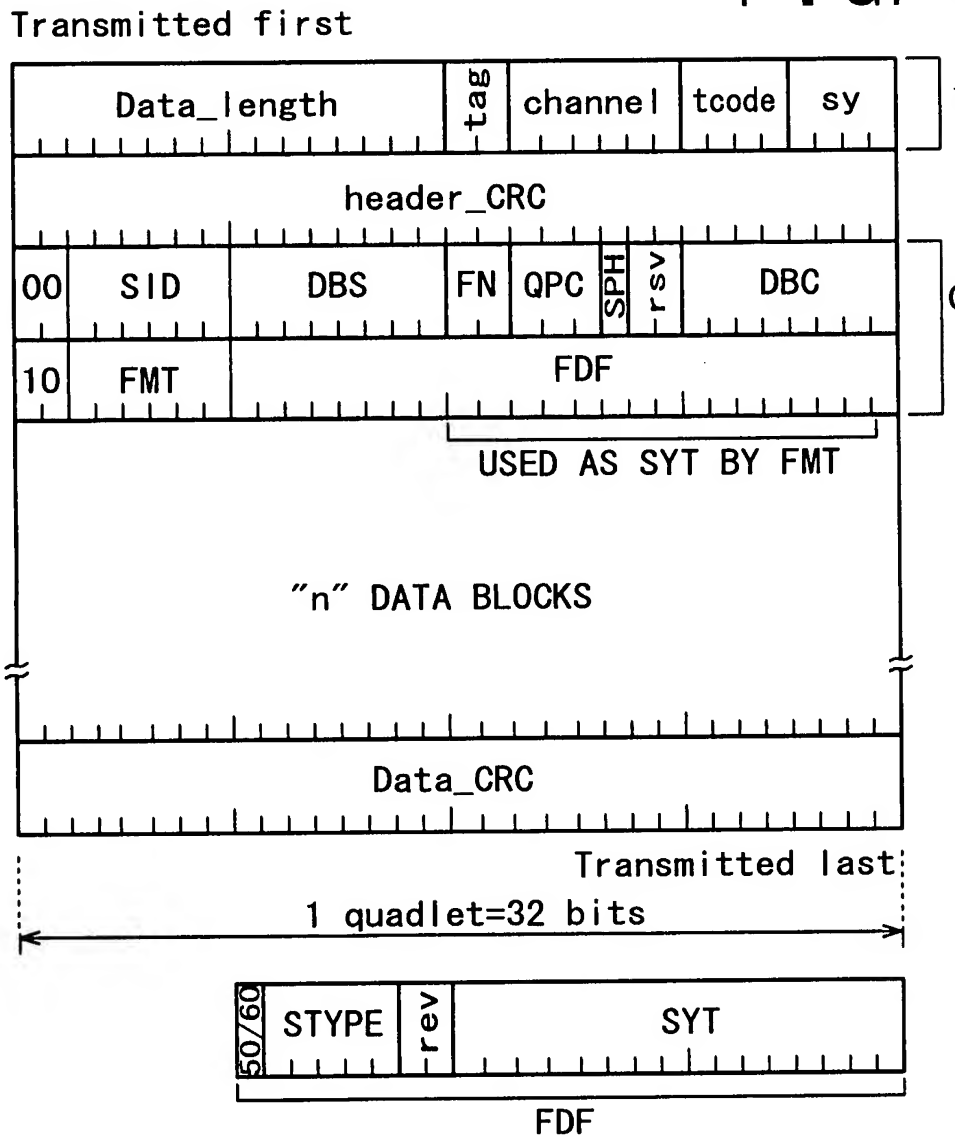

Cycle Start
Ch1
Ch2
Packet A
Packet B
ACK
ACK
isochronous gap (0.05μsec)
subaction gap (~10μsec)
ack gap (0.5μsec)
isochronous packet
asynchronous packet
isochronous subactions
asynchronous subacations
isochronous cycle (nominal cycle (125μsec))
cycle synch
cycle synch

FIG. 9



SID SENDING NODE NO.
DBS PACKETIZATION UNIT (DATA BLOCK SIZE)
FN NO. OF DATA DIVISIONS FOR PACKETIZATION
QPC NO. OF QUADLETS ADDED FOR DATA DIVISION
SPH SOURCE PACKET HEADER FLAG
DBC COUNTER FOR DETECTING PACKET DROP-OUTS
FMT SIGNAL FORMAT
FDF FORMAT-DEPENDENT FIELD

(IN THE CASE OF MPEG)
TSF TIME SHIFT FLAG
(IN THE CASE OF DVCR)
50/60 NO. OF FIELDS PER SECOND
STYPE VIDEO FORMAT(SD OR HD)
SYT TIME STAMP FOR FRAME SYNCHRONIZATION

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FIG. 10

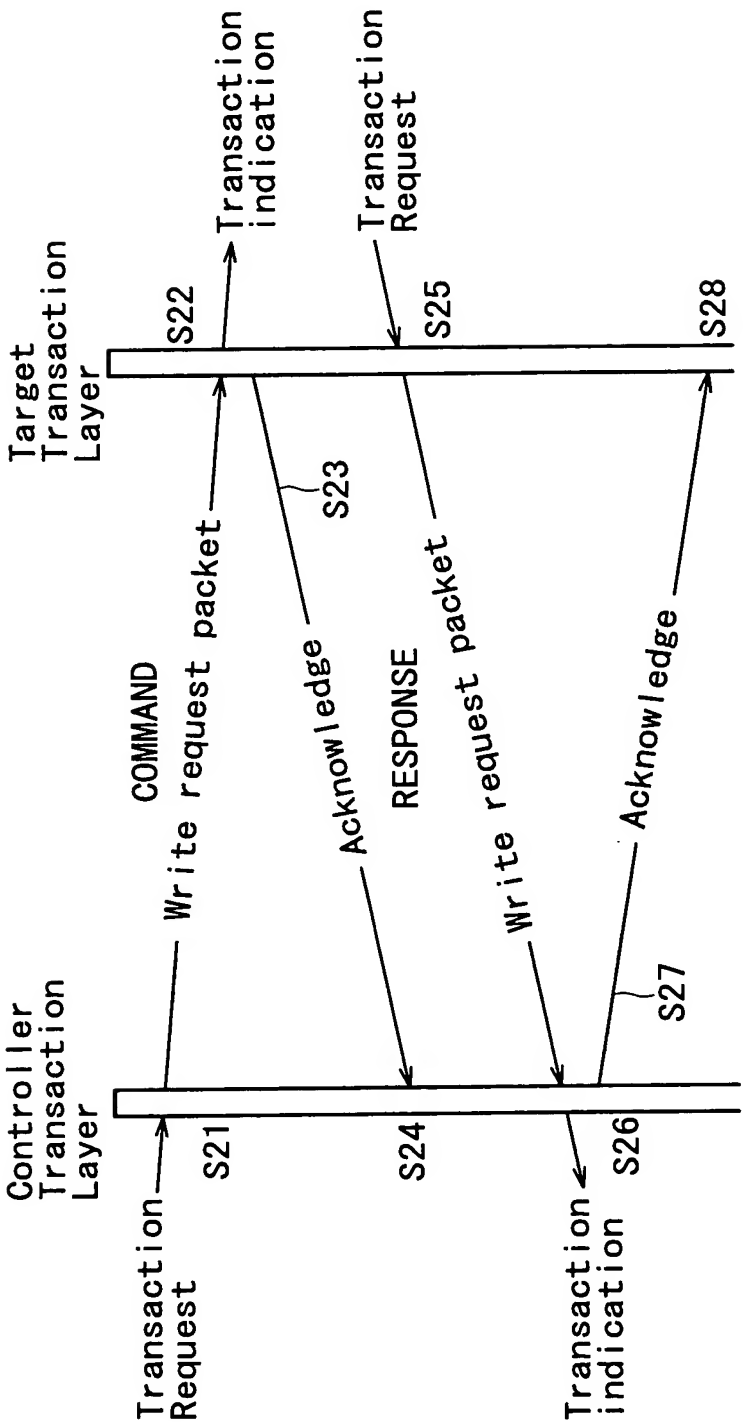
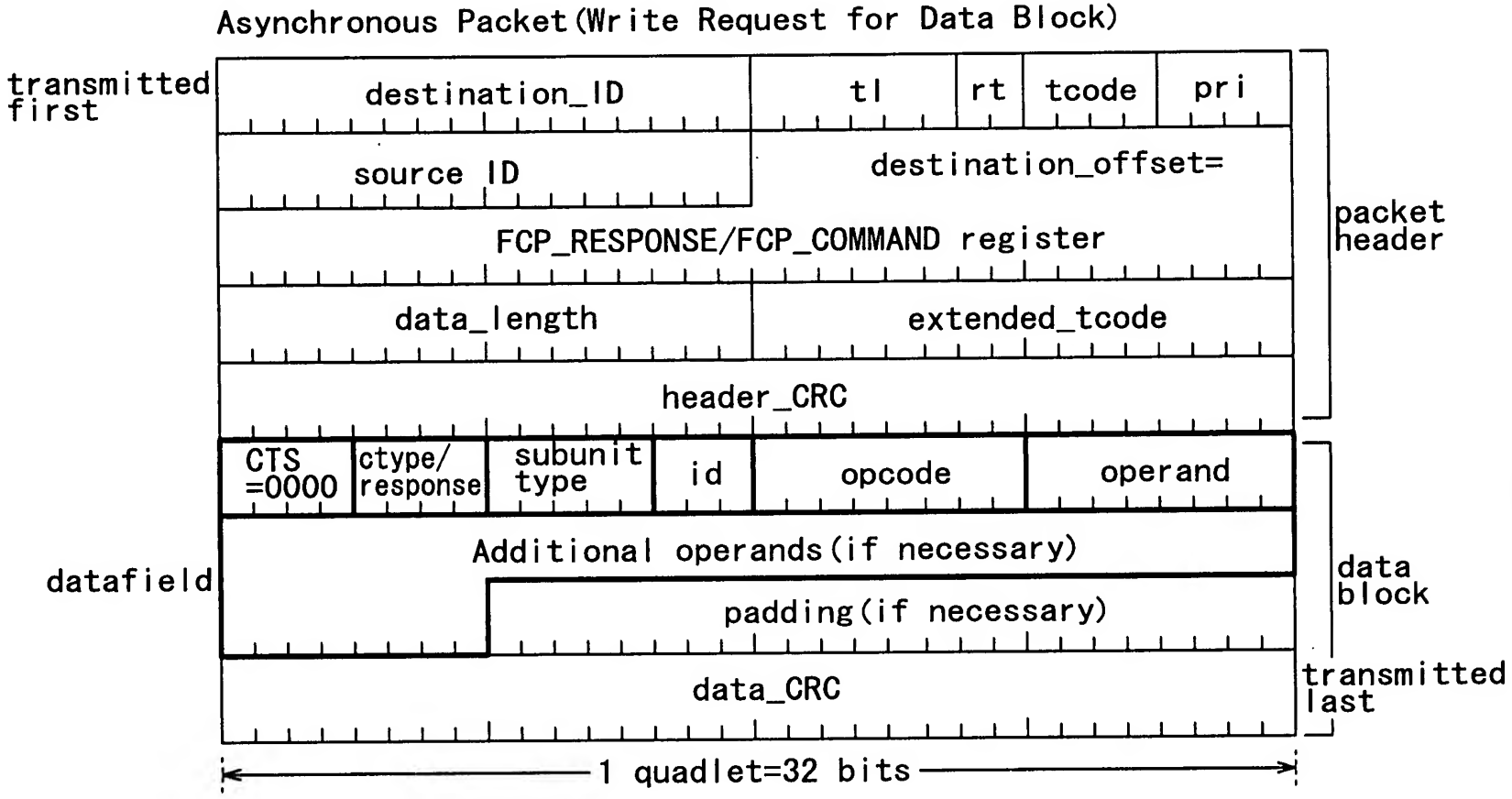

Target Transaction Layer
Controller Transaction Layer
Transaction Request
Transaction indication
Transaction Request
Transaction indication
S21
S22
S23
S24
S25
S26
S27
S28
COMMAND
Write request packet
Acknowledge
RESPONSE
Write request packet
Acknowledge

FIG. 11



CTS COMMAND SET ID
ctype TYPE OF COMMAND FUNCTION
response RESULT OF PROCESSING BY COMMAND
subunit type ADDRESS(FOR IDENTIFYING FUNCTIONAL UNIT WITHIN APPARATUS)
id ADDRESS(FOR DISTINGUISHING ONE SUBUNIT FROM ANOTHER OF THE SAME TYPE)
opcode COMMAND
operand COMMAND PARAMETER

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FIG. 12

ctype/response

Command	0000	CONTROL
	0001	STATUS
	0010	INQUIRY
	0011	NOTIFY
	0100 ~ 0111	(reserved)
Response	1000	NOT IMPLEMENTED
	1001	ACCEPTED
	1010	REJENTED
	1011	IN TRANSITION
	1100	IMPLEMENTED/STABLE
	1101	CHANGED
	1110	(reserved)
	1111	INTERIM

FIG. 13A

subunit_type	
00000	Monitor
	(reserved)
00011	Disc recorder/player
00100	VCR
00101	Tuner
00111	Camera
~	(reserved)
11111	Unit*

FIG. 13B

opcode:Operation Code	
00h	VENDOR-DEPENDENT
50h	SEACH MODE
52h	ATN
60h	OPEN MIC
61h	READ MIC
62h	WRITE MIC
C1h	LOAD MEDIUM
C2h	RECORD
C3h	PLAY
C4h	WIND
~	~

* EACH SUBUNIT IS PROVIDED WITH AN OPCODE TABLE
* OPERANDS ARE DEFINED FOR EACH OPCODE

FIG. 14

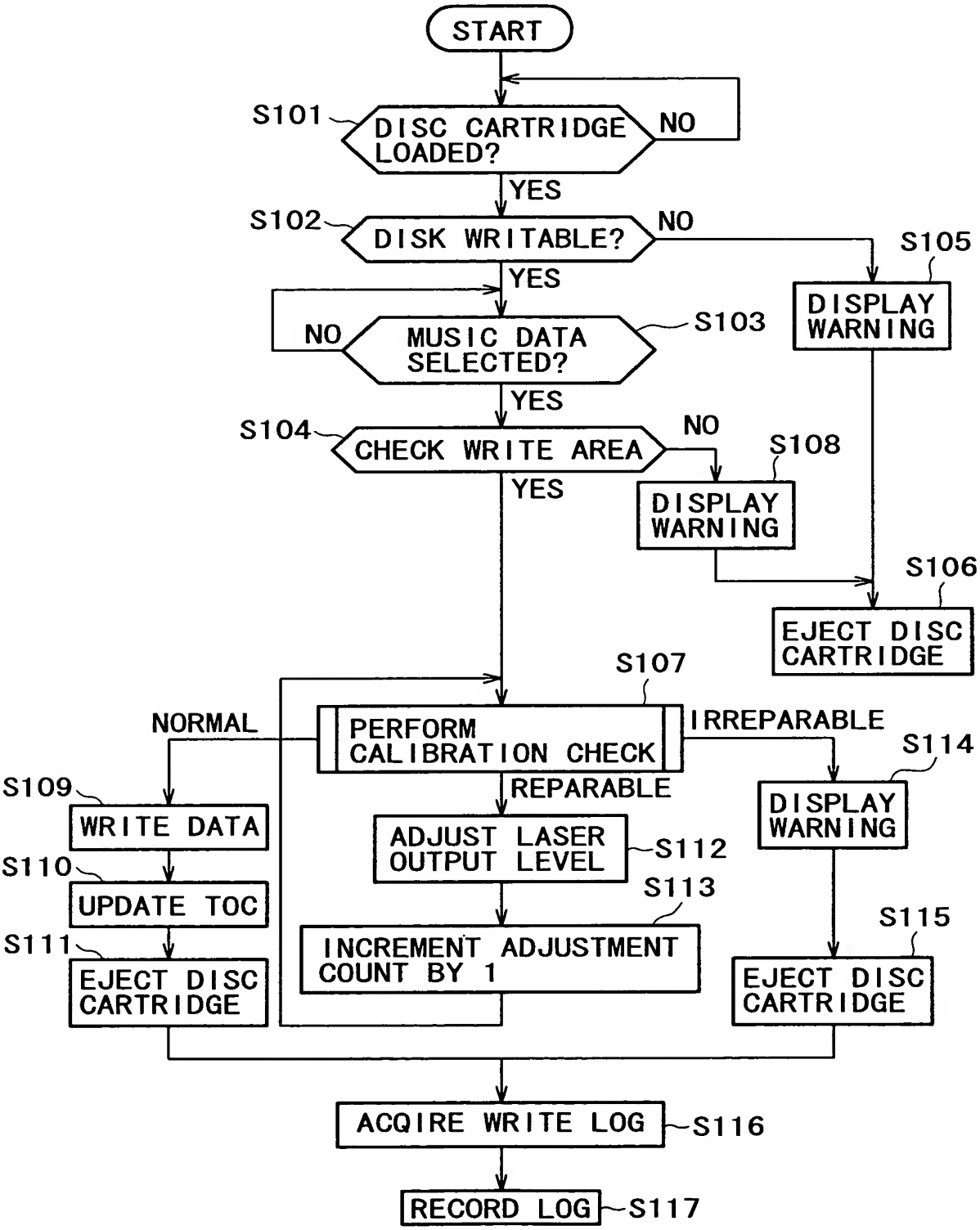

START
S101
DISC CARTRIDGE LOADED?
NO
YES
S102
DISK WRITABLE?
NO
S105
DISPLAY WARNING
YES
NO
MUSIC DATA SELECTED?
S103
YES
S104
CHECK WRITE AREA
NO
S108
DISPLAY WARNING
YES
S106
EJECT DISC CARTRIDGE
S107
NORMAL
PERFORM CALIBRATION CHECK
IRREPARABLE
S114
S109
WRITE DATA
REPARABLE
DISPLAY WARNING
ADJUST LASER OUTPUT LEVEL
S112
S110
UPDATE TOC
S113
S115
INCREMENT ADJUSTMENT COUNT BY 1
S111
EJECT DISC CARTRIDGE
EJECT DISC CARTRIDGE
ACQIRE WRITE LOG
S116
RECORD LOG
S117

FIG. 15

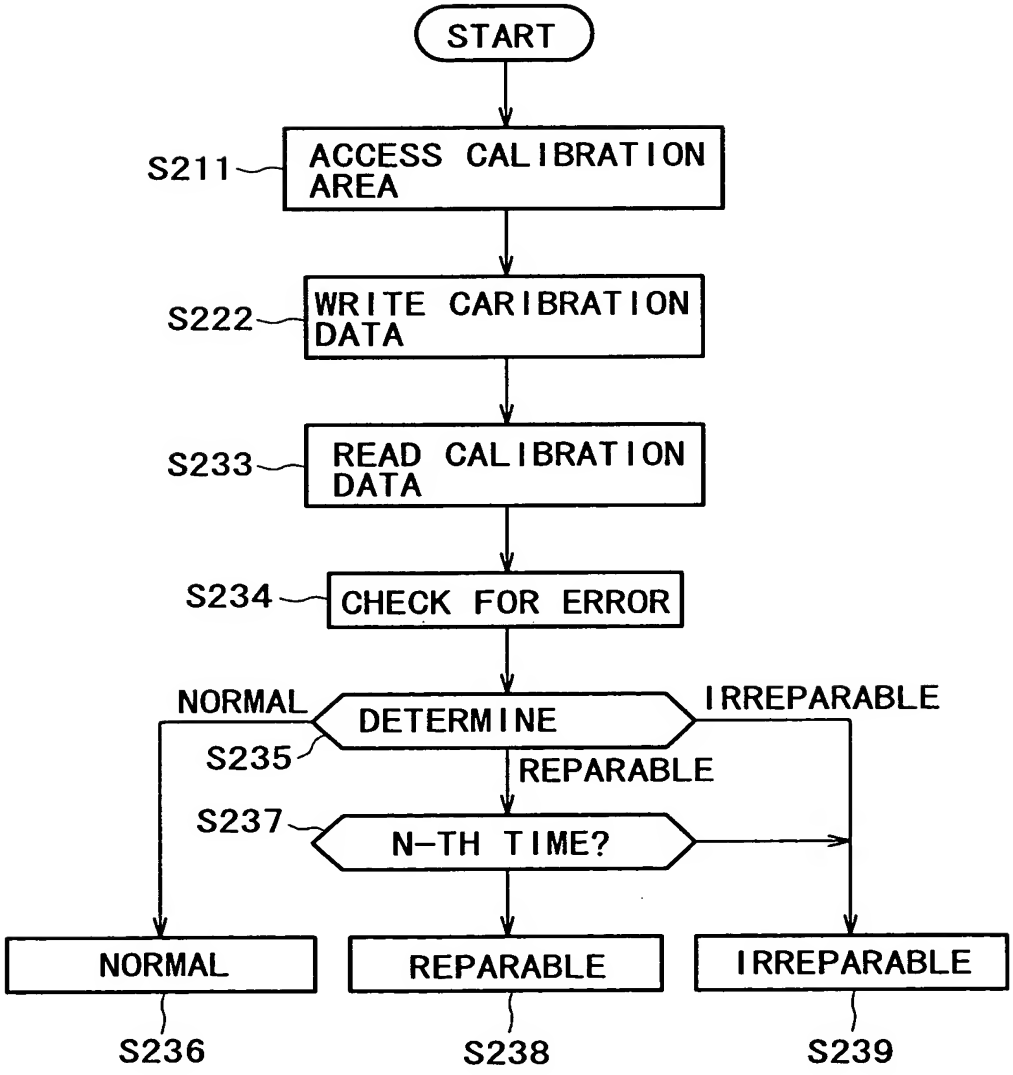

START
S211
ACCESS CALIBRATION AREA
S222
WRITE CARIBRATION DATA
S233
READ CALIBRATION DATA
S234
CHECK FOR ERROR
NORMAL
DETERMINE
IRREPARABLE
S235
REPARABLE
S237
N-TH TIME?
NORMAL
REPARABLE
IRREPARABLE
S236
S238
S239

FIG. 16

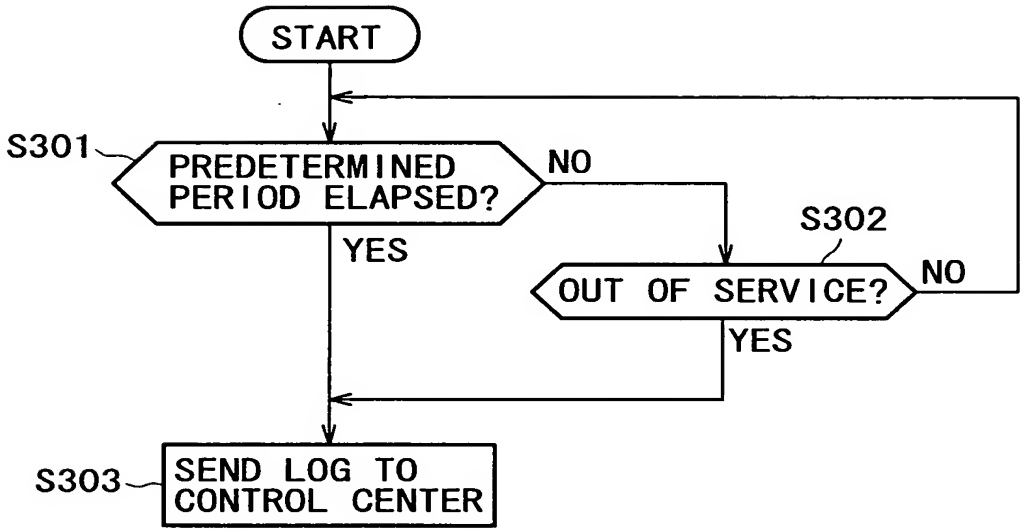

START
S301
PREDETERMINED PERIOD ELAPSED?
NO
YES
S302
OUT OF SERVICE?
NO
YES
S303
SEND LOG TO CONTROL CENTER

FIG. 17

GET_MAINTENANCE_INFO

	contents								value
	msb							lsb	
	CTS (0h)				Ctype (1h)				01h
	subunit_type (11h)						subunit ID (0h)		18h
OpCode	VENDER_DEPENDENT								00h
Operand[0]	Company ID								08h
Operand[1]									00h
Operand[2]									46h
Operand[3]	Level								F0h
Operand[4]	Product code								03h
Operand[5]									01h
Operand[6]	Application code								02h
Operand[7]	Opcode (GET_MAINTENANCE_INFO)								30h
Operand[8]	Total_rec (H)								FFh
Operand[9]	Total_rec (L)								FFh
Operand[10]	Viop_ref (H)								FFh
Operand[11]	Viop_ref (L)								FFh
Operand[12]	Viop (H)								FFh
Operand[13]	Viop (L)								FFh
Operand[14]	Temperature (H)								FFh
Operand[15]	Temperature (L)								FFh
Operand[16]	Voltage (H)								FFh
Operand[17]	Voltage (L)								FFh
Operand[18]	Download_count[Request] (H)								FFh
Operand[19]	Download_count[Request] (L)								FFh
Operand[20]	Download_count[Done] (H)								FFh
Operand[21]	Download_count[Done] (L)								FFh
Operand[22]	Download_count[Cancel] (H)								FFh
Operand[23]	Download_count[Cancel] (L)								FFh
Operand[24]	Interrupt_Register[7-0]								FFh
Operand[25]	emb_flag2[7-0]								FFh
Operand[26]	state_flag2[7-0]								FFh
Operand[27]	retry_status_disp[7-0]								FFh
Operand[28]	rec_retry_count_sum								FFh
Operand[29]	Serial_number (H)								FFh
Operand[30]	Serial_number (L)								FFh
Operand[31]	Version_number (H)								FFh
Operand[32]	Version_number (L)								FFh
Operand[33]	rror_rate (H)								FFh
Operand[34]	error_rate (L)								FFh

Command: 01 18 00 08 00 46 F0 03 01 02 30 FF FF FF FF FF
FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF FF

Length=38

FIG. 18

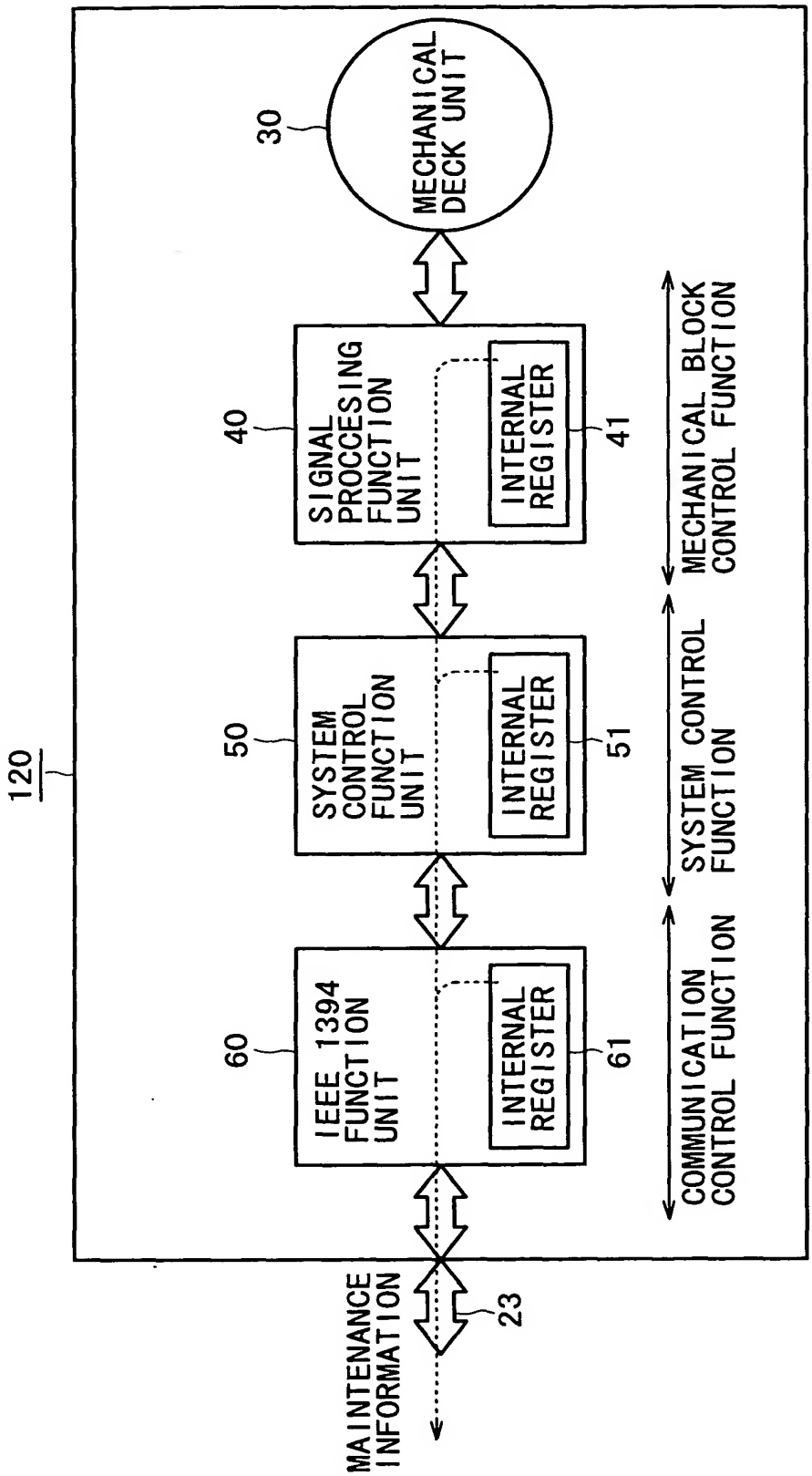

120
30
MECHANICAL DECK UNIT
40
SIGNAL PROCCESING FUNCTION UNIT
INTERNAL REGISTER
41
50
SYSTEM CONTROL FUNCTION UNIT
INTERNAL REGISTER
51
60
IEEE 1394 FUNCTION UNIT
INTERNAL REGISTER
61
MECHANICAL BLOCK CONTROL FUNCTION
SYSTEM CONTROL FUNCTION
COMMUNICATION CONTROL FUNCTION
MAINTENANCE INFORMATION
23

FIG. 19

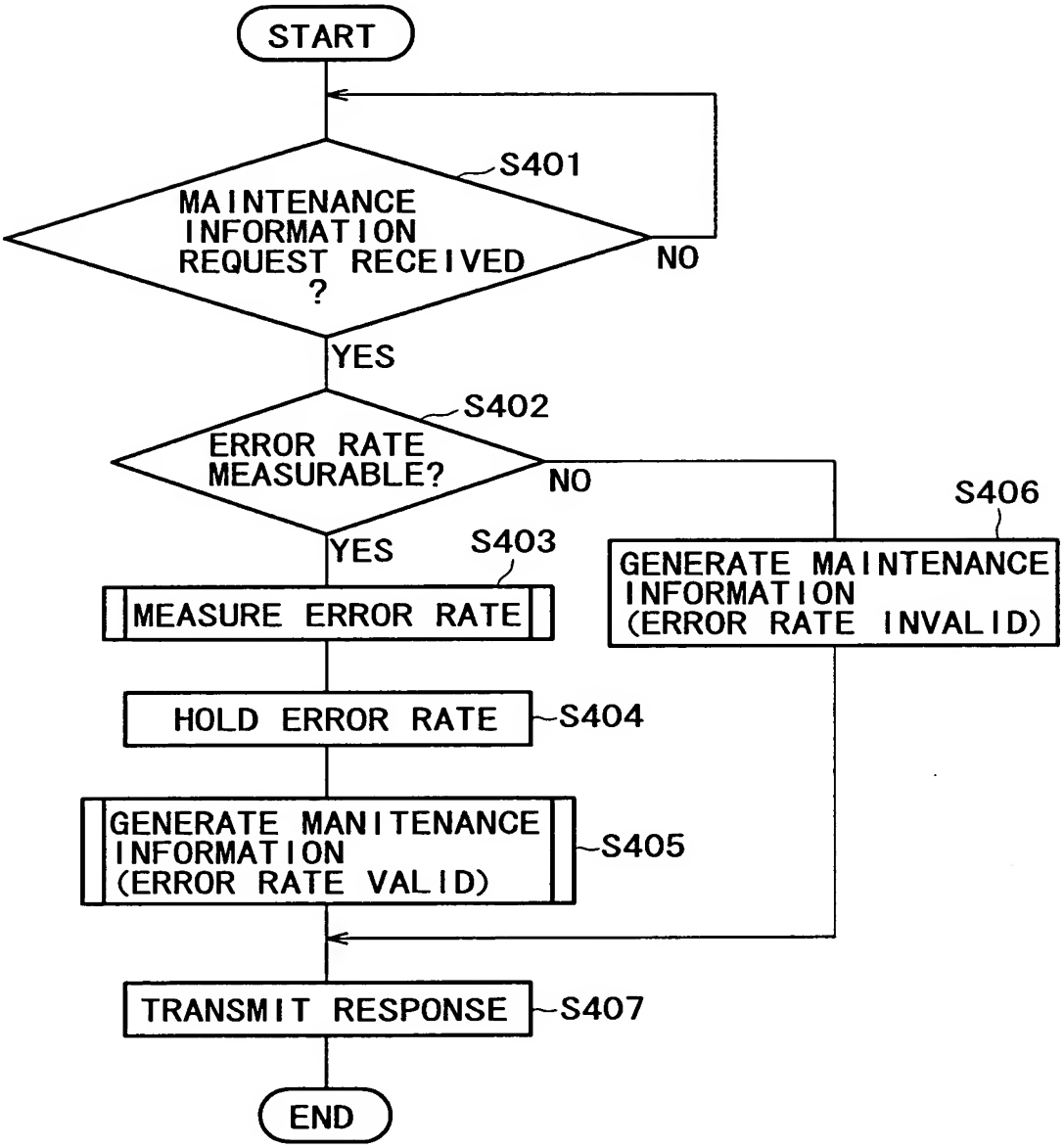
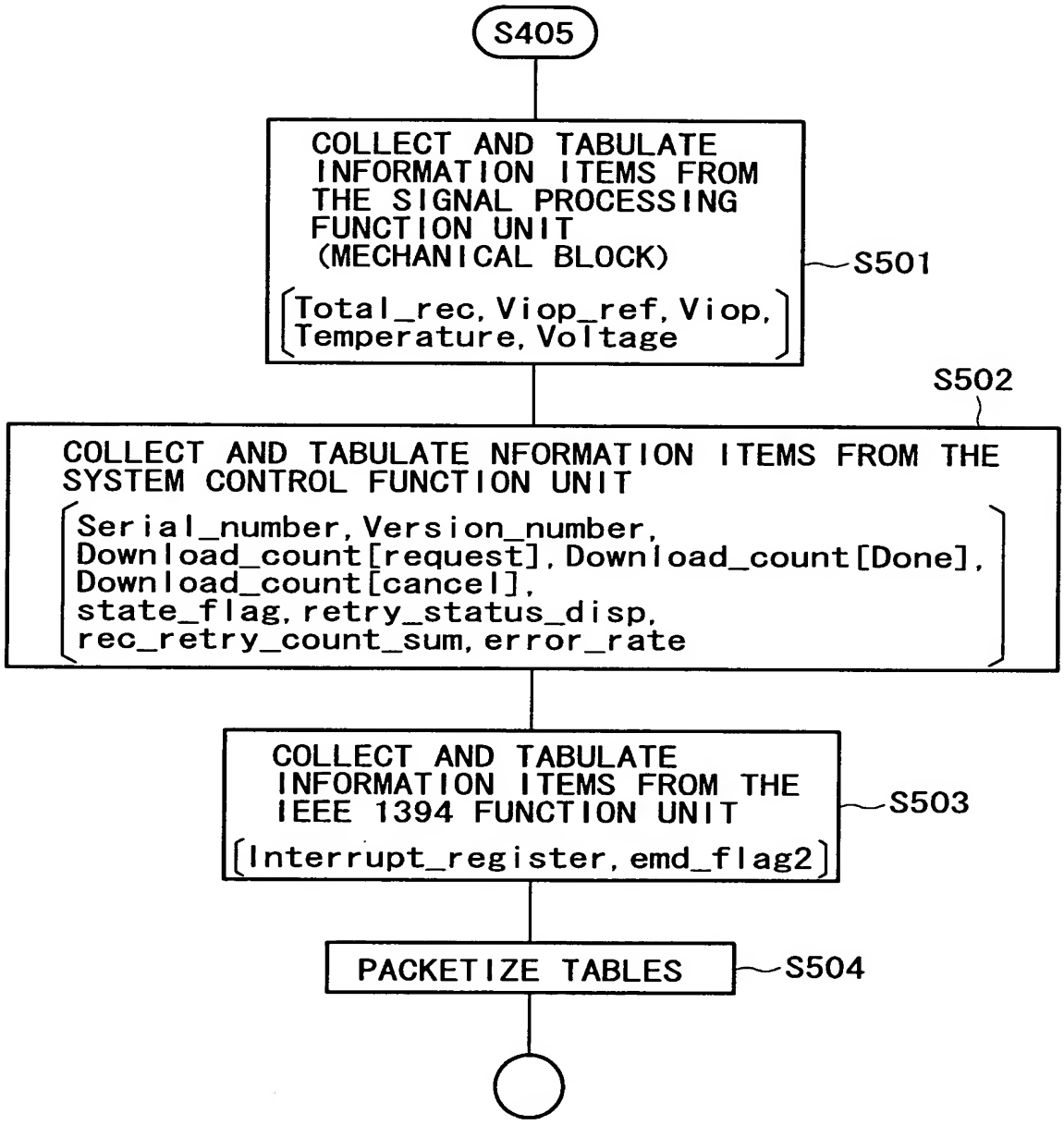

START
S401
MAINTENANCE INFORMATION REQUEST RECEIVED ?
NO
YES
S402
ERROR RATE MEASURABLE?
NO
YES
S403
MEASURE ERROR RATE
S406
GENERATE MAINTENANCE INFORMATION (ERROR RATE INVALID)
HOLD ERROR RATE
S404
GENERATE MANITENANCE INFORMATION (ERROR RATE VALID)
S405
TRANSMIT RESPONSE
S407
END

FIG. 20


S405
COLLECT AND TABULATE INFORMATION ITEMS FROM THE SIGNAL PROCESSING FUNCTION UNIT (MECHANICAL BLOCK)
[Total_rec, Viop_ref, Viop, Temperature, Voltage]
S501
S502
COLLECT AND TABULATE NFORMATION ITEMS FROM THE SYSTEM CONTROL FUNCTION UNIT
[Serial_number, Version_number, Download_count[request], Download_count[Done], Download_count[cancel], state_flag, retry_status_disp, rec_retry_count_sum, error_rate]
COLLECT AND TABULATE INFORMATION ITEMS FROM THE IEEE 1394 FUNCTION UNIT
[Interrupt_register, emd_flag2]
S503
PACKETIZE TABLES
S504